SECTION 9-05, DRAINAGE STRUCTURES, CULVERTS, AND CONDUITS
February 5, 1996

9-05.0 Acceptance by Manufacturer's Certification
The first paragraph is supplemented with the following:

Corrugated polyethylene culvert and storm sewer pipe up to and including 36-inch diameter.

Profile wall PVC culvert and storm sewer pipe up to and including 36-inch diameter.

9-05.1(6) Corrugated Polyethylene Drainage Tubing Drain Pipe
The second sentence of this section is revised to read:

The maximum size pipe shall be 10 inches in diameter.

9-05.1(7) Corrugated Polyethylene Drain Pipe
This section is revised to read:

Corrugated polyethylene drain pipe, 12-inch through 36-inch diameter maximum, shall meet the minimum requirements of AASHTO M 294 Type S.

9-05.2(7) Perforated Corrugated Polyethylene Drainage Tubing Underdrain Pipe
The second sentence of this section is revised to read:

The maximum size pipe shall be 10 inches in diameter.

9-05.2(8) Perforated Corrugated Polyethylene Underdrain Pipe
The first sentence of this section is revised to read:

Perforated corrugated polyethylene underdrain pipe, 12-inch through 36-inch diameter maximum, shall meet the minimum requirements of AASHTO M 294 Type S.

9-05.12 PVC Sewer Pipe
This section is revised to read:

9-05.12 Polyvinyl Chloride (PVC) Pipe

9-05.12(1) Solid Wall PVC Culvert Pipe, Solid Wall PVC Storm Sewer Pipe, and PVC Sanitary Sewer Pipe
Solid wall PVC culvert pipe, solid wall PVC storm sewer pipe, and PVC sanitary sewer pipe and fittings shall be solid wall construction and shall conform to the requirements of ASTM D 3034 SDR 35 for pipe up to 15-inch diameter and ASTM F 679, Type 1 only, for pipe sizes 18- to 27-inch diameter.

Joints for solid wall PVC pipe shall conform to ASTM D 3212 using elastomeric gaskets conforming to ASTM F 477.

Fittings for solid wall PVC sanitary sewer pipe shall be injection molded, factory welded, or factory solvent cemented.

9-05.12(2) Profile Wall PVC Culvert Pipe and Profile Wall PVC Storm Sewer Pipe

Profile wall PVC culvert pipe and profile wall storm sewer pipe shall meet the requirements of AASHTO M 304. The maximum pipe diameter shall be 36 inches or the diameter for which a producer has submitted a qualified joint, whichever is less.

Joints for profile wall PVC culvert pipe shall conform to ASTM D 3212 using elastomeric gaskets conforming to ASTM F 477, or as approved through the Olympia Service Center Materials Laboratory.

Qualified producers are identified in the Special Provisions. Qualification for each producer requires joint system conformance to ASTM D 3212 using elastomeric gaskets conforming to ASTM F 477 and a formal quality control plan for each plant proposed for consideration.

A producer's Certificate of Compliance shall be required and shall accompany the materials delivered to the project. The certificate shall clearly identify production lots for all materials represented. The Contracting Agency may conduct verification tests of pipe stiffness or other properties as it deems appropriate.

Fittings for profile wall PVC storm sewer pipe shall meet the requirements of AASHTO M 304 and shall be injection molded, factory welded, or factory solvent cemented.

9-05.15 Metal Castings

This section is supplemented with the following paragraph:

Metal castings for drainage structures shall not be dipped, painted, welded, plugged, or repaired.

9-05.19 Corrugated Polyethylene Culvert Pipe

This section is added as follows:

Corrugated polyethylene culvert pipe shall meet the requirements of AASHTO M 294, Type S. The maximum pipe diameter shall be 36 inches.

Joints for corrugated polyethylene culvert pipe shall be classified as either watertight or soiltight. Watertight joints shall be made with a sleeve or with a bell and spigot and shall conform to ASTM D 3212 using elastomeric gaskets conforming to ASTM F 477. Soiltight joints shall be either split coupling or bell and spigot. Gaskets for soiltight split couplings shall be manufactured with the same material as the pipe and shall extend a minimum of two corrugations onto each pipe. Closed cell neoprene strip gaskets (with adhesive backing) meeting the requirements of ASTM D 1056, Grade number 2A1 shall be factory installed in the interior of the split coupling. Gaskets shall be placed around the entire circumference of the coupling and on the two inside lap face surfaces of the coupling. Gaskets shall be in compression when the coupling is closed and tightened.

Gaskets for soiltight bell and spigot joints shall be installed on the bell by the manufacturer and shall meet the requirements of ASTM D 1056 Grade number 2A2. The bell shall be an integral part of the pipe and when positioned, shall cover three corrugations on the spigot. Four cleats on the bell shall lock into the second corrugation of the spigot to provide joint integrity.

Qualified producers are identified in the Special Provisions. Qualification for each producer of corrugated polyethylene culvert pipe requires an approved joint system and a formal quality control plan for each plant proposed for consideration.

A producer's Certificate of Compliance shall be required and shall accompany the materials delivered to the project. The certificate shall clearly identify production lots for all materials represented. The Contracting Agency may conduct verification tests of pipe stiffness or other properties as it deems appropriate.

9-05.20 Corrugated Polyethylene Storm Sewer Pipe

This section is added as follows:

Corrugated polyethylene storm sewer pipe and fittings shall meet the requirements of Section 9-05.19, with the following exceptions:

The maximum pipe diameter for corrugated polyethylene storm sewer pipe shall be 36 inches or the diameter for which a producer has submitted a qualified joint, whichever is less. Qualified producers are listed in the Special Provisions.

Only watertight joints may be used. Qualification for each manufacturer of corrugated polyethylene storm sewer pipe also requires joint system conformance to ASTM D 3212 using elastomeric gaskets conforming to ASTM F 477.

Fittings for corrugated polyethylene storm sewer pipe shall meet the requirements of AASHTO M 294 and shall be blow molded, rotational molded, or factory welded.